



## CASE STUDY



# Frauscher Advanced Counter FAdCi at Vhodnaya Station (KZ)

## REQUIREMENTS

ArcelorMittal operates a dedicated industrial railway infrastructure in Temirtau, Kazakhstan. Vhodnaya station is a shunting yard where various goods and materials such as polyester, zinc, aluminum, sinter, iron ore or coke-chemical products are loaded and unloaded. It comprises 64 switching points and 68 signals, requiring a train detection system with a high level of availability to enable safe and efficient traffic management. The existing track circuit-based system did not operate as reliably as desired. A decision was therefore made to opt for another solution which maintains uptime even under extreme conditions. These conditions include temperatures ranging from  $-50^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ , contamination of track sections with industrial dust, high levels of humidity and more.

## SOLUTION

Based on the satisfactory results of a trial phase, ArcelorMittal agreed to the installation of a modern axle counter system. In September 2017, a new solution based on the Frauscher Advanced Counter FAdCi went into operation. A total of 64 individual track sections were fitted with 120 Frauscher Wheel Sensors RSR180.

## BENEFITS

By installing the axle counter, lifecycle and maintenance costs have been reduced dramatically. The same applies to downtimes due to train detection failures. Efficiency in terms of traffic management and the use of freight cars has therefore increased. Confirmation of train integrity via the axle counter is an extremely helpful feature for signaling staff. In addition, the Frauscher Diagnostic System FDS is now being used to show diagnostic data in concise form on a 25" display in the interlocking system.

## PROJECT DETAILS



Since its commissioning in 1987, Vhodnaya station has been equipped with a modular route relay interlocking system. Alongside 64 switch points and 68 signals, it also controls five approach lines, including several industrial spurs and one coming from Kazakhstan Railway's station Zhana-Aul on the JSC 'NC 'KTZ' network. Installing the FADci is also the first step towards replacing the interlocking system with a microprocessor-based interlocking system. Due to the axle counter's network ability, modernization of the interlocking system can now be achieved without affecting the signaling system.

The operator highlighted that the signaling staff save precious time, as the need to dispatch and accept trains using written forms and enter records in the Train Register has been reduced or has been eliminated. Furthermore, the use of modern axle counters and wheel sensors to demarcate the ends of track sections has alleviated the need to install insulated rail joints and has enabled the use of standard length rail sections. The sensors are mounted to the rail using a patented rail claw, without the need for drilling.

### Frauscher Diagnostic System FDS

The Frauscher Diagnostic System allows ArcelorMittal to monitor the system in real-time via a web browser, even from remote locations. Preventive maintenance, the optimization of fault rectification, unrestricted online access to the axle counter system data and the minimization of maintenance work lead to a reduction in lifecycle costs. The FDS features the option to fully integrate the FADci diagnostics into the operator's overall diagnostic and maintenance system via a software interface.

- Ⓜ Assembly team on-site
- Ⓜ Frauscher Diagnostic System FDS
- Ⓜ Mounted RSR180

#### Operator

ArcelorMittal Temirtau

#### Partner

Kazcenterelectroprovod (KCEP)

#### Scope of Supply

Components, Installation and Commissioning

#### Scope of Project

Axle Counting System

#### Axle Counting

FADci

#### Wheel Detection

Wheel Sensor RSR180

#### Country

Kazakhstan

#### Segment

Industrial

#### Application

Track Vacancy Detection

#### Project start

2017